

WHAT IS CLAIMED IS:

1. A pharmaceutical composition comprising an MTb81 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, and an Mo2 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

2. The composition of claim 1, wherein the antigens are covalently linked, thereby forming a fusion polypeptide.

3. The composition of claim 2, wherein the fusion polypeptide has the amino acid sequence of TbF14.

4. A pharmaceutical composition comprising a TbRa3 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, a 38kD antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, a Tb38-1 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, and a FL TbH4 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

5. The composition of claim 4, wherein the antigens are covalently linked, thereby forming a fusion polypeptide.

6. The composition of claim 5, wherein the fusion polypeptide has the amino acid sequence of TbF15.

7. A pharmaceutical composition comprising an HTCC#1 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, and a TbH9 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

8. The composition of claim 7, wherein the antigens are covalently linked, thereby forming a fusion polypeptide.

9. The composition of claim 7, comprising a full-length HTCC#1 antigen from a *Mycobacterium* species of the tuberculosis complex, and a full-length TbH9 antigen from a *Mycobacterium* species of the tuberculosis complex.

1 10. The composition of claim 9, wherein the antigens are covalently  
2 linked, thereby forming a fusion polypeptide.

1 11. The composition of claim 10, wherein the fusion polypeptide has the  
2 amino acid sequence of HTCC#1(FL)-TbH9(FL).

1 12. The composition of claim 7, comprising a polypeptide comprising  
2 amino acids 184-392 of an HTCC#1 antigen from a *Mycobacterium* species of the  
3 tuberculosis complex, a TbH9 antigen or an immunogenic fragment thereof from a  
4 *Mycobacterium* species of the tuberculosis complex, and a polypeptide comprising amino  
5 acids 1-129 of an HTCC#1 antigen from a *Mycobacterium* species of the tuberculosis  
6 complex.

1 13. The composition of claim 12, wherein the antigens are covalently  
2 linked, thereby forming a fusion polypeptide.

1 14. The composition of claim 13, wherein the fusion polypeptide has the  
2 amino acid sequence of HTCC#1(184-392)/TbH9/HTCC#1(1-129).

1 15. A pharmaceutical composition comprising a TbRa12 antigen or an  
2 immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex,  
3 and an HTCC#1 antigen or an immunogenic fragment thereof from a *Mycobacterium* species  
4 of the tuberculosis complex.

1 16. The composition of claim 15, wherein the antigens are covalently  
2 linked, thereby forming a fusion polypeptide.

1 17. The composition of claim 16, wherein the fusion polypeptide has the  
2 amino acid sequence of TbRa12-HTCC#1.

1 18. A pharmaceutical composition comprising at least two heterologous  
2 antigens from a *Mycobacterium* species of the tuberculosis complex or an immunogenic  
3 fragment thereof, wherein the antigen or immunogenic fragment thereof is selected from the  
4 group consisting of MTb81, Mo2, TbRa3, 38kD, Tb38-1 (MTb11), FL TbH4, HTCC#1  
5 (Mtb40), TbH9, MTCC#2 (Mtb41), DPEP, DPPD, TbRa35, TbRa12, MTb59, MTb82, Erd14

6 (Mtb16), FL TbRa35 (Mtb32A), DPV (Mtb8.4), MSL (Mtb9.8), MTI (Mtb9.9A, also known  
7 as MTI-A), ESAT-6,  $\alpha$ -crystalline, and 85 complex.

1 19. The composition of claim 18, wherein the antigens are covalently  
2 linked, thereby forming a fusion polypeptide.

1 20. The composition of claim 1, 4, 7, 15, or 18, wherein the antigens are  
2 covalently linked via a chemical linker.

1 21. The composition of claim 20, wherein the chemical linker is an amino  
2 acid linker.

1 22. The composition of claim 1, 4, 7, 15, or 18, further comprising at least  
2 one additional antigen from a *Mycobacterium* species of the tuberculosis complex, wherein  
3 the antigen is selected from the group consisting of MTb81, Mo2, TbRa3, 38kD, Tb38-1  
4 (MTb11), FL TbH4, HTCC#1 (Mtb40), TbH9, MTCC#2 (Mtb41), DPEP, DPPD, TbRa35,  
5 TbRa12, MTb59, MTb82, Erd14 (Mtb16), FL TbRa35 (Mtb32A), DPV (Mtb8.4), MSL  
6 (Mtb9.8), MTI (Mtb9.9A, also known as MTI-A), ESAT-6,  $\alpha$ -crystalline, and 85 complex, or  
7 an immunogenic fragment thereof.

1 23. The composition of claim 1, 4, 7, 15, or 18, further comprising an  
2 adjuvant.

1 24. The composition of claim 23, wherein the adjuvant comprises QS21  
2 and MPL.

1 25. The composition of claim 23, wherein the adjuvant is selected from the  
2 group consisting of AS2, ENHANZYN, MPL, QS21, CWS, TDM, AGP, CPG, Leif, saponin,  
3 and saponin mimetics.

1 26. The composition of claim 1, 4, 7, 15, or 18, further comprising BCG.

1 27. The composition of claim 1, 4, 7, 15, or 18, further comprising an NS1  
2 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the  
3 tuberculosis complex.

1 28. The composition of claim 1, 4, 7, 15, or 18, wherein the  
2 *Mycobacterium* species is *Mycobacterium tuberculosis*.

1 29. An expression cassette comprising a nucleic acid encoding an MTb81  
2 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the  
3 tuberculosis complex, and a nucleic acid encoding an Mo2 antigen or an immunogenic  
4 fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

1 30. The expression cassette of claim 29, wherein the nucleic acid encodes  
2 a fusion polypeptide comprising an MTb81 antigen or an immunogenic fragment thereof and  
3 a nucleic acid encoding an Mo2 antigen or an immunogenic fragment thereof.

1 31. The expression cassette of claim 30, wherein the nucleic acid encodes  
2 a fusion polypeptide having the amino acid sequence of TbF14.

1 32. The expression cassette of claim 31, wherein the nucleic acid has the  
2 nucleotide sequence of the nucleic acid encoding TbF14.

33. An expression cassette comprising a nucleic acid encoding a TbRa3 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, a nucleic acid encoding a 38kD antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, a nucleic acid encoding a Tb38-1 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, and a nucleic acid encoding a FL TbH4 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

1 34. The expression cassette of claim 33, wherein the nucleic acid encodes  
2 a fusion polypeptide comprising a TbRa3 antigen or an immunogenic fragment thereof, a  
3 38kD antigen or an immunogenic fragment thereof, a Tb38-1 antigen or an immunogenic  
4 fragment thereof, and a nucleic acid encoding a FL TbH4 antigen or an immunogenic  
5 fragment thereof.

1 35. The expression cassette of claim 34, wherein the nucleic acid encodes  
2 a fusion polypeptide having the amino acid sequence of TbF15.

1 36. The expression cassette of claim 35, wherein the nucleic acid has the  
2 nucleotide sequence of the nucleic acid encoding TbF15.

37. An expression cassette comprising a nucleic acid encoding an HTCC#1 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, and a nucleic acid encoding a TbH9 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

38. The expression cassette of claim 37, comprising a nucleic acid encoding a full-length HTCC#1 antigen from a *Mycobacterium* species of the tuberculosis complex, and a nucleic acid encoding a full-length TbH9 antigen from a *Mycobacterium* species of the tuberculosis complex.

39. The expression cassette of claim 37, comprising a nucleic acid encoding a polypeptide comprising amino acids 184-392 of an HTCC#1 antigen from a *Mycobacterium* species of the tuberculosis complex, a nucleic acid encoding a TbH9 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, and a nucleic acid encoding a polypeptide comprising amino acids 1-129 of an HTCC#1 antigen from a *Mycobacterium* species of the tuberculosis complex.

40. The expression cassette of claim 37, wherein the nucleic acid encodes a fusion polypeptide comprising an HTCC#1 antigen or an immunogenic fragment thereof, and a Tbc19 antigen or an immunogenic fragment thereof.

41. The expression cassette of claim 38, wherein the nucleic acid encodes a fusion polypeptide comprising a full-length HTCC#1 antigen, and a full-length TbH9 antigen.

42. The expression cassette of claim 39, wherein the nucleic acid encodes a fusion polypeptide comprising amino acids 184-392 of an HTCC#1, a TbH9 antigen or an immunogenic fragment thereof, and amino acids 1-129 of an HTCC#1 antigen.

43. The expression cassette of claim 41, wherein the nucleic acid encodes a fusion polypeptide having the amino acid sequence of HTCC#1(FL)-TbH9(FL).

44. The expression cassette of claim 43, wherein the nucleic acid has the nucleotide sequence of the nucleic acid encoding HTCC#1(FL)-TbH9(FL).

1 45. The expression cassette of claim 42, wherein the nucleic acid encodes  
2 a fusion polypeptide having the amino acid sequence of HTCC#1(184-  
3 392)/TbH9/HTCC#1(1-129).

1 46. The expression cassette of claim 45, wherein the nucleic acid has the  
2 nucleotide sequence of the nucleic acid encoding HTCC#1(184-392)/TbH9/HTCC#1(1-129).

1 47. An expression cassette comprising a nucleic acid encoding a TbRa12  
2 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the  
3 tuberculosis complex, and a nucleic acid encoding an HTCC#1 antigen or an immunogenic  
4 fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

1 48. The expression cassette of claim 47, wherein the nucleic acid encodes  
2 a fusion polypeptide comprising an Ra12 antigen or an immunogenic fragment thereof, and  
3 an HTCC#1 antigen or an immunogenic fragment thereof.

1 49. The expression cassette of claim 48, wherein the nucleic acid encodes  
2 a fusion polypeptide having the amino acid sequence of TbRa12-HTCC#1.

1 50. The expression cassette of claim 49, wherein the nucleic acid has the  
2 nucleotide sequence of the nucleic acid encoding TbRa12-HTCC#1.

1 51. An expression cassette comprising a nucleic acid encoding at least two  
2 heterologous antigens from a *Mycobacterium* species of the tuberculosis complex or an  
3 immunogenic fragment thereof, wherein the antigen or immunogenic fragment thereof is  
4 selected from the group consisting of MTb81, Mo2, TbRa3, 38kD, Tb38-1 (MTb11), FL  
5 TbH4, HTCC#1 (Mtb40), TbH9, MTCC#2 (Mtb41), DPEP, DPPD, TbRa35, TbRa12,  
6 MTb59, MTb82, Erd14 (Mtb16), FL TbRa35 (Mtb32A), DPV (Mtb8.4), MSL (Mtb9.8), MTI  
7 (Mtb9.9A, also known as MTI-A), ESAT-6,  $\alpha$ -crystalline, and 85 complex.

1 52. The expression cassette of claim 51, wherein the nucleic acid encodes  
2 a fusion polypeptide.

1 53. The expression cassette of claim 29, 33, 37, 47 or 51, further  
2 comprising a nucleic acid encoding at least one additional antigen from a *Mycobacterium*  
3 species of the tuberculosis complex, wherein the antigen is selected from the group consisting

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4 of MTb81, Mo2, TbRa3, 38kD, Tb38-1 (MTb11), FL TbH4, HTCC#1 (Mtb40), TbH9,  
5 MTCC#2 (Mtb41), DPEP, DPPD, TbRa35, TbRa12, MTb59, MTb82, Erd14 (Mtb16), FL  
6 TbRa35 (Mtb32A), DPV (Mtb8.4), MSL (Mtb9.8), MTI, ESAT-6,  $\alpha$ -crystalline, and 85  
7 complex, or an immunogenic fragment thereof.

1 54. The expression cassette of claim 29, 33, 37, 47 or 51, further  
2 comprising a nucleic acid encoding an NS1 antigen or an antigenic fragment thereof from a  
3 *Mycobacterium* species of the tuberculosis complex.

1 55. The expression cassette of claim 29, 33, 37, 47 or 51, wherein the  
2 *Mycobacterium* species is *Mycobacterium tuberculosis*.

1 56. A method for eliciting an immune response in a mammal, the method  
2 comprising the step of administering to the mammal an immunologically effective amount of  
3 a pharmaceutical composition comprising an MTb81 antigen or an immunogenic fragment  
4 thereof from a *Mycobacterium* species of the tuberculosis complex, and an Mo2 antigen or an  
5 immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

1 57. The method of claim 56, wherein the antigens are covalently linked,  
2 thereby forming a fusion polypeptide.

1 58. The method of claim 57, wherein the fusion polypeptide has the amino  
2 acid sequence of TbF14.

1 59. A method for eliciting an immune response in a mammal, the method  
2 comprising the step of administering to the mammal an immunologically effective amount of  
3 a pharmaceutical composition comprising a TbRa3 antigen or an immunogenic fragment  
4 thereof from a *Mycobacterium* species of the tuberculosis complex, a 38kD antigen or an  
5 immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, a  
6 Tb38-1 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the  
7 tuberculosis complex, and a FL TbH4 antigen or an immunogenic fragment thereof from a  
8 *Mycobacterium* species of the tuberculosis complex.

1 60. The method of claim 59, wherein the antigens are covalently linked,  
2 thereby forming a fusion polypeptide.





4 thereof from a *Mycobacterium* species of the tuberculosis complex, and an HTCC#1 antigen  
5 or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis  
6 complex.

1 70. The method of claim 69, wherein the antigens are covalently linked,  
2 thereby forming a fusion polypeptide.

1 71. The method of claim 70, wherein the fusion polypeptide has the amino  
2 acid sequence of TbRa12-HTCC#1.

1 72. A method for eliciting an immune response in a mammal, the method  
2 comprising the step of administering to the mammal an immunologically effective amount of  
3 a pharmaceutical composition comprising at least two heterologous antigens from a  
4 *Mycobacterium* species of the tuberculosis complex or an immunogenic fragment thereof,  
5 wherein the antigen or immunogenic fragment thereof is selected from the group consisting of  
6 MTb81, Mo2, TbRa3, 38kD, Tb38-1 (MTb11), FL TbH4, HTCC#1 (Mtb40), TbH9,  
7 MTCC#2 (Mtb41), DPEP, DPPD, TbRa35, TbRa12, MTb59, MTb82, Erd14 (Mtb16), FL  
8 TbRa35 (Mtb32A), DPV (Mtb8.4), MSL (Mtb9.8), MTI (Mtb9.9A, also known as MTI-A),  
9 ESAT-6,  $\alpha$ -crystalline, and 85 complex.

1 73. The method of claim 72, wherein the antigens are covalently linked,  
2 thereby forming a fusion protein.

1 74. The method of claim 56, 59, 62, 69, or 72, wherein the mammal has  
2 been immunized with BCG.

1 75. The method of claim 56, 59, 62, 69, or 72, wherein the mammal is a  
2 human.

1 76. The method of claim 56, 59, 62, 69, or 72, wherein the composition is  
2 administered prophylactically.

1 77. The method of claim 56, 59, 62, 69, or 72, wherein the pharmaceutical  
2 composition further comprises an adjuvant.

1 78. The method of claim 77, wherein the adjuvant comprises QS21 and  
2 MPL.

1           79.     The method of claim 77, wherein the adjuvant is selected from the  
2 group consisting of AS2, ENHANZYN, MPL, QS21, CWS, TDM, AGP, CPG, Leif, saponin,  
3 and saponin mimetics.

1           80.     A method for eliciting an immune response in a mammal, the method  
2 comprising the step of administering to the mammal an immunologically effective amount of  
3 an expression cassette comprising a nucleic acid encoding an MTb81 antigen or an  
4 immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex,  
5 and a nucleic acid encoding an Mo2 antigen or an immunogenic fragment thereof from a  
6 *Mycobacterium* species of the tuberculosis complex.

1           81.     The method of claim 80, wherein the nucleic acid encodes a fusion  
2 polypeptide comprising an MTb81 antigen or an immunogenic fragment thereof, and an Mo2  
3 antigen or an immunogenic fragment thereof.

1           82.     The method of claim 81, wherein the nucleic acid encodes a fusion  
2 polypeptide having the amino acid sequence of TbF14.

1           83.     The method of claim 82, wherein the nucleic acid has the nucleotide  
2 sequence of the nucleic acid encoding TbF14.

1           84.     A method for eliciting an immune response in a mammal, the method  
2 comprising the step of administering to the mammal an immunologically effective amount of  
3 an expression cassette comprising a nucleic acid encoding a TbRa3 antigen or an  
4 immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, a  
5 nucleic acid encoding a 38kD antigen or an immunogenic fragment thereof from a  
6 *Mycobacterium* species of the tuberculosis complex, a nucleic acid encoding a Tb38-1  
7 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the  
8 tuberculosis complex, and a nucleic acid encoding a FL TbH4 antigen or an immunogenic  
9 fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

1           85.     The method of claim 84, wherein the nucleic acid encodes a fusion  
2 polypeptide comprising a TbRa3 antigen or an immunogenic fragment thereof, a 38kD  
3 antigen or an immunogenic fragment thereof, a Tb38-1 antigen or an immunogenic fragment  
4 thereof, and a FL TbH4 antigen or an immunogenic fragment thereof.

1 86. The method of claim 85, wherein the nucleic acid encodes a fusion  
2 polypeptide having the amino acid sequence of TbF15.

1 87. The method of claim 86, wherein the nucleic acid has the nucleotide  
2 sequence of the nucleic acid encoding TbF15.

1 88. A method for eliciting an immune response in a mammal, the method  
2 comprising the step of administering to the mammal an immunologically effective amount of  
3 an expression cassette comprising a nucleic acid encoding an HTCC#1 antigen or an  
4 immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex,  
5 and a nucleic acid encoding a TbH9 antigen or an immunogenic fragment thereof from a  
6 *Mycobacterium* species of the tuberculosis complex.

1 89. The method of claim 88, wherein the nucleic acid encodes a fusion  
2 polypeptide comprising an HTCC#1 antigen or an immunogenic fragment thereof, and a  
3 TbH9 antigen or an immunogenic fragment thereof.

1 90. The method of claim 89, wherein the nucleic acid encodes a fusion  
2 polypeptide comprising a full-length HTCC#1 antigen or an immunogenic fragment thereof,  
3 and a full-length TbH9 antigen or an immunogenic fragment thereof.

1 91. The method of claim 90, wherein the nucleic acid encodes a fusion  
2 polypeptide having the amino acid sequence of HTCC#1(FL)-TbH9(FL).

1 92. The method of claim 91, wherein the nucleic acid has the nucleotide  
2 sequence of the nucleic acid encoding HTCC#1(FL)-TbH9(FL).

1 93. The method of claim 89, wherein the nucleic acid encodes a fusion  
2 polypeptide comprising a polypeptide comprising amino acids 184-392 of an HTCC#1  
3 antigen, a TbH9 antigen or an immunogenic fragment thereof, and a polypeptide comprising  
4 amino acids 1-129 of an HTCC#1 antigen.

1 94. The method of claim 93, wherein the nucleic acid encodes a fusion  
2 polypeptide having the amino acid sequence of HTCC#1(184-392)/TbH9/HTCC#1(1-129).

1 95. The method of claim 93, wherein the nucleic acid has the nucleotide  
2 sequence of the nucleic acid encoding HTCC#1(184-392)/TbH9/HTCC#1(1-129).

96. A method for eliciting an immune response in a mammal, the method comprising the step of administering to the mammal an immunologically effective amount of an expression cassette comprising a nucleic acid encoding a TbRa12 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, and a nucleic acid encoding an HTCC#1 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

97. The method of claim 96, wherein the nucleic acid encodes a fusion polypeptide comprising a TbRa12 antigen or an immunogenic fragment thereof, and an HTCC#1 antigen or an immunogenic fragment thereof.

98. The method of claim 97, wherein the nucleic acid encodes a fusion polypeptide having the amino acid sequence of TbRa12-HTCC#1.

99. The method of claim 98, wherein the nucleic acid has the nucleotide sequence of the nucleic acid encoding TbRa12-HTCC#1.

100. A method for eliciting an immune response in a mammal, the method comprising the step of administering to the mammal an immunologically effective amount of an expression cassette comprising a nucleic acid encoding at least two heterologous antigens from a *Mycobacterium* species of the tuberculosis complex or an immunogenic fragment thereof, wherein the antigen or immunogenic fragment thereof is selected from the group consisting of MTb81, Mo2, TbRa3, 38kD, Tb38-1 (MTb11), FL TbH4, HTCC#1 (Mtb40), TbH9, MTCC#2 (Mtb41), DPEP, DPPD, TbRa35, TbRa12, MTb59, MTb82, Erd14 (Mtb16), FL TbRa35 (Mtb32A), DPV (Mtb8.4), MSL (Mtb9.8), MTI (Mtb9.9A, also known as MTI-A), ESAT-6,  $\alpha$ -crystalline, and 85 complex.

101. . The method of claim 100, wherein the nucleic acid encodes a fusion polypeptide.

102. The method of claim 80, 84, 88, 96, or 100, wherein the mammal has been immunized with BCG.

103. The method of claim 80, 84, 88, 96, or 100, wherein the mammal is a human.

104. The method of claim 80, 84, 88, 96, or 100, wherein the composition is administered prophylactically.

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105. A fusion protein comprising an MTb81 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, and an Mo2 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

106. The protein of claim 105, wherein the fusion polypeptide has the amino acid sequence of TbF14.

107. A fusion protein comprising a TbRa3 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, a 38kD antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, a Tb38-1 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, and a FL TbH4 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

108. The protein of claim 107, wherein the fusion polypeptide has the amino acid sequence of TbF15.

109. A fusion protein comprising an HTCC#1 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex, and a TbH9 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the tuberculosis complex.

110. The protein of claim 109, comprising a full-length HTCC#1 antigen from a *Mycobacterium* species of the tuberculosis complex, and a full-length TbH9 antigen from a *Mycobacterium* species of the tuberculosis complex.

111. The protein of claim 110, wherein the fusion polypeptide has the amino acid sequence of HTCC#1(FL)-TbH9(FL).

112. The protein of claim 109, comprising a polypeptide comprising amino acids 184-392 of an HTCC#1 antigen from a *Mycobacterium* species of the tuberculosis complex, a TbH9 antigen or an immunogenic fragment thereof from a *Mycobacterium*

4 species of the tuberculosis complex, and a polypeptide comprising amino acids 1-129 of an  
5 HTCC#1 antigen from a *Mycobacterium* species of the tuberculosis complex.

1 113. The protein of claim 112, wherein the fusion polypeptide has the  
2 amino acid sequence of HTCC#1(184-392)/TbH9/HTCC#1(1-129).

1 114. A fusion protein comprising a TbRa12 antigen or an immunogenic  
2 fragment thereof from a *Mycobacterium* species of the tuberculosis complex, and an  
3 HTCC#1 antigen or an immunogenic fragment thereof from a *Mycobacterium* species of the  
4 tuberculosis complex.

1 115. The protein of claim 114, wherein the fusion polypeptide has the  
2 amino acid sequence of TbRa12-HTCC#1.